

Application No. 10/018,662

## IN THE CLAIMS:

Claim 1 (cancelled).

Claim 2 (cancelled).

Claim 3 (cancelled).

Claim 4 (cancelled).

Claim 5 (cancelled).

Claim 6 (cancelled).

Claim 7 (cancelled).

Claim 8 (cancelled).

Claim 9 (cancelled).

Claim 10 (cancelled).

Claim 11 (cancelled).

Claim 12 (cancelled).

Claim 13 (cancelled).

Claim 14 (cancelled).

Claim 15 (cancelled).

Claim 16 (cancelled).

Claim 17 (cancelled).

B15

Please add new claims 18-34 as follows:

18. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology characterized because a) its semiconductor layers are made of III-V compounds, b) it works at luminous power densities greater than  $1 \text{ W/cm}^2$ , c) its size is in the range of 0.1 to 100 square millimeters, d) as a result of its reduced size photolithography is used for the definition of numerous photovoltaic converters on a same semiconductor wafer, as well as for the shape of a frontal grid on

Application No. 10/018,662

each of the photovoltaic converters, and finally, e) the separation of the converters on the same semiconductor wafer is carried out by sawing or by cutting with a point or cleaving or by other cutting techniques.

19. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 characterized because a substrate over which the photovoltaic converter is grown is one of a III-V semiconductor, another semiconductor as germanium or silicon, or a non-semiconductor substrate as ceramic or glass.
20. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 characterized because it transforms a cone of incident light with a given spectrum and coming from a medium with any refraction index into electrical energy.
21. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 characterized for its use in photovoltaic solar energy applications, for which a particular spectrum comes from the sun and in which the device is assembled to an optical concentrator which increases the luminous intensity coming from the sun.
22. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 characterized because the photovoltaic converter device is assembled to an optical concentrator by means of silicone rubber, epoxy, resins or other paste, glue or primer.
23. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 characterized for producing electrical energy from heat sources and whose particular spectrum is, mainly, infrared.
24. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 characterized because the photovoltaic converter device is assembled to an optical concentrator by means of silicone rubbers, epoxies, resins or other pastes, glues or primers.
25. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 characterized by

B15  
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Application No. 10/018,662

carrying out conversion of light channeled by optical fiber and coming from a laser into electricity for high-risk environments like for example the powering of sensors and electronics in applications such as mines, high-tension grids, the chemical and petrochemical industries, nuclear power plants, airplanes, rockets, satellites and biomedicine.

26. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 **characterized** because its encapsulation is carried out by means of optoelectronic techniques like for example: a) fixing the converter device (or die attach) by its rear contact to a support using epoxy or solder, and b) connection of the front metal grid by means of wire bonding, pick and place, flip-chip, multichip-module or similar connection techniques.

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27. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 **characterized** because the device consists of a single semiconductor junction.

28. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 **characterized** because the device consists of several semiconductor junctions.

29. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 **characterized** for possessing a monolithic connection in series in order to increase the output voltage.

30. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 **characterized** because the device consists of a single semiconductor junction.

31. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 **characterized** because the device consists of several semiconductor junctions.

32. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 **characterized** for possessing a monolithic connection in series in order to increase the output voltage

26←33. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 **characterized**

Application No. 10/018,662

B15  
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because its encapsulation is carried out by means of optoelectronic techniques like for example: a) fixing the converter device by its rear contact to a support using epoxy or solder, and b) connection of the frontal metal grid by means of wire bonding, pick and place, flip-chip, multichip-module or similar connection techniques.

34. (new) High efficiency photovoltaic converter device for high luminous intensities manufactured using optoelectronic technology according to claim 18 characterized because the design of its configuration: semiconductor structure of III-V compounds, ohmic contacts, geometry, metal grid and antireflection layers is calculated by means of multivariable optimization following the maximum efficiency criterion.
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